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(54) **PREPARATION MULTIPHASE SOUS FORME DE STICK**
(54) **MULTIPHASE STICK PREPARATION**

(57) L'invention concerne une préparation sous forme de stick délivrant une substance de forme stable jusqu'à 40 °C et s'étalant sur la peau. Cette préparation est constituée d'au moins deux phases gélifiées séparées et de composition différente, à base d'alcools mono- ou multivalents, de gélifiants, de matières odorantes, de principes actifs cosmétiques ou dermatologiques, ainsi qu'éventuellement d'eau et d'adjuvants galéniques, et contient dans l'une des phases gélifiées 0,1-10 % en poids, par rapport à cette phase, d'une poudre poreuse constituée de particules polymères sphériques. Ces particules polymères renferment de préférence un noyau composé d'un pigment, par exemple du dioxyde de titane, et sont chargées avec des matières odorantes et/ou des principes actifs. Cette préparation diphasique sous forme de stick se distingue par une résistance accrue à la migration des différents constituants dans l'autre phase et par une libération contrôlée des principes actifs ou des matières odorantes.

(57) The invention relates to a stick preparation for discharging a material which can be spread onto the skin and which retains its shape in temperatures of up to 40 °C. The stick preparation consists of two or more separate, differently composed gel phases with a base consisting of mono- or polyvalent alcohols, gelling agents, fragrances, cosmetic or dermatological active agents and optionally, water and galenical auxiliary agents, and contains 0.1-10 wt. % of a porous powder consisting of spherical polymer particles in one of the gel phases, in relation to this phase. Said polymer particles preferably contain a core consisting of a pigment, e.g., titanium oxide, and are loaded with fragrances and/or active agents. The inventive two phase stick preparation is characterised by its increased resistance against individual components bleeding into the other phase, and by the controlled release of the active agents or fragrances.

Multiphase Stick Preparation

This invention relates to a cosmetic and dermatological preparation in the form of a stick for applying a composition dimensionally stable at ambient temperature and spreadable at body temperature to the skin, this composition comprising two or more gel phases of different composition.

Two-phase stick preparations based on alcoholic soap gels have been known for some time, cf. for example **DE-AS 1 122 221**. Preparations such as these make is possible to introduce individual constituents which are incompatible with other components into one phase of the stick and thus to prevent unwanted interactions with the components of the second phase. The storage stability of the stick preparations can also be increased by introducing the more readily volatile or oxidation-sensitive components into the core or into one of the inner phases of the stick.

However, problems arise out of the fact that the contact between the two phases can lead to interactions between the phases, more particularly to the bleeding of individual components into the other phase. In order to prevent this, **DE-A-2 752 420** proposes a two-phase antiperspirant stick which comprises a core of an oil solidified with waxes and an outer phase or jacket of a polyol soap gel.

These known stick preparations are unsatisfactory both in their sensorial properties and in their performance properties. Above all, they do not solve the problem of effectively preventing individual components of two-phase soap gel sticks from bleeding from one phase into the other phase.

Another problem to be solved was to develop multiphase stick preparations with a particularly attractive, aesthetically satisfactory appearance and improved sensorial properties.

According to the invention, this problem has been solved by dispersing a porous powder of spherical polymer particles in one of the gel

phases. Microspheres such as these can also be charged with sensitive active ingredients, readily volatile perfumes or dyes so that these components are stabilized.

Accordingly, the present invention relates to a stick preparation of a composition which is dimensionally stable up to 40°C, can be spread onto the skin and melts at temperatures above 40°C and which consists of two or more separate gel phases of different composition which contain monohydric or polyhydric alcohols, gelling agents, perfumes, cosmetic or dermatological principles and optionally water and galenic auxiliaries, a porous powder of spherical polymer particles being dispersed in one of the gel phases in a quantity of 0.1 to 10% by weight, based on that phase.

In addition, the stick preparation according to the invention can be made aesthetically very attractive through differences in the transparency, coloring or pigmenting of the phases. The spherical polymer particles improve skin feel where corresponding sticks are used on the skin by increasing the lubricating effect and reducing tackiness. Finally, it has been found that perfumes and cosmetic principles can be at least partly absorbed in the porous polymer particles and released to the skin again under control, i.e. over a prolonged period. This slow-release effect can be enhanced by initially charging the porous polymer particles during their production with the perfumes and active principles and introducing them thus charged into the gel phase.

In the context of the present invention, the expression "gel phase" is understood to be a composition which comprises a liquid phase that has been solidified by a gelling agent. The liquid phase may consist of water, monohydric and polyhydric alcohols containing 2 to 8 carbon atoms and mixtures thereof. Suitable agents for gelling these liquid phases are surfactants which, dissolved in the liquid phase, form a network structure and thus solidify the liquid phase to form the gel. Gelling agents such as these are, for example, the metal salts of fatty acids, preferably those

containing 12 to 22 carbon atoms, fatty acid amides, fatty acid alkanolamides, dibenzal sorbitol and certain polymers, for example alcohol-soluble polyamides and polyacrylamides, or mixtures of these gelling agents. Preferred gelling agents are the alkali metal, alkaline earth metal, aluminium and amine soaps of C_{12-22} fatty acids, for example sodium stearate, sodium palmitate, magnesium stearate or aluminium stearate.

Preferred polyhydric alcohols are polyols containing 2 to 8 carbon atoms and 2 to 6 hydroxyl groups, for example ethylene glycol, 1,2-propylene glycol, 1,3-propylene glycol, 1,2-butylene glycol, 1,3-butylene glycol, 1,4-butylene glycol, 2-methyl propane-1,3-diol, glycerol, erythritol, pentaerythritol, trimethylol propane, sorbitol, methyl glucoside, cyclohexane triol or inositol. Suitable monohydric alcohols are, for example, ethanol, n-propanol and isopropanol. Preferred components of the liquid phase are ethanol, 1,2-propylene glycol, butane-1,3-diol, glycerol, sorbitol and mixtures thereof, optionally even in admixture with water.

The gel phases additionally contain perfumes or cosmetic or dermatological principles.

Suitable perfumes or perfume oils include individual pefume compounds, for example synthetic products of the ester, ether, aldehyde, ketone, alcohol and hydrocarbon type. Perfume compounds of the ester type are, for example, benzyl acetate, phenoxyethyl isobutyrate, p-tert.butyl cyclohexyl acetate, linalyl acetate, dimethyl benzyl carbinyl acetate, phenyl ethyl acetate, linalyl benzoate, benzyl formate, ethyl methyl phenyl glycinate, allyl cyclohexyl propionate, styrallyl propionate and benzyl salicylate. The ethers include, for example, benzyl ethyl ether; the aldehydes include, for example, the linear alkanals containing 8 to 18 carbon atoms, citral, citronellal, citronellyloxyacetaldehyde, cyclamen aldehyde, hydroxycitronellal, lilial and bourgeonal; the ketones include, for example, the ionones, ∀-isomethyl ionone and methyl cedryl ketone; the alcohols include anethol, citronellol, eugenol, geraniol, linalool, phenyl ethyl

alcohol and terpineol and the hydrocarbons include, above all, the terpenes and balsams. However, mixtures of various perfumes which together produce an attractive perfume note are preferably used.

Perfume oils such as these may also contain natural fragrance mixtures obtainable from vegetable or animal sources, for example pine, citrus, jasmine, lily, rose or ylang-ylang oil. Other suitable perfume oils are essential oils of relatively low volatility which are generally used as aroma components, for example sage oil, camomile oil, clove oil, melissa oil, mint oil, cinnamon leaf oil, lime blossom oil, juniper berry oil, vetiver oil, olibanum oil, galbanum oil and labdanum oil.

Suitable cosmetic principles are, above all, substances which have a favorable effect on the aesthetic properties of the skin, more particularly on its smoothness and suppleness, on skin moisture, on perspiration and body odor and on the coloring or browning of the skin and on its protection against the harmful effects of the environment, more particularly sunlight.

Preferred cosmetic principles for the stick preparations according to the invention are, above all, deodorizing and perspiration-inhibiting substances. These are understood above all to be antimicrobial substances which have an inhibiting effect on perspiration-decomposing microorganisms or enzyme-inhibiting substances which inhibit the perspiration-decomposing esterase enzyme. Suitable antimicrobial agents are, for example, 2,4,4'-trichloro-2-2'-hydroxydiphenyl ether (Triclosan®), chlorhexidine gluconate, phenoxyethanol, pentane-1,5-diol, hexane-1,6-diol, antimicrobial essential oils and farnesol. Suitable lipase inhibitors are, for example, triethyl citrate and triacetin. Perspiration-inhibiting astringent substances compatible with the gel phase may also be present in the stick preparations. Suitable antiperspirant agents are, for example, sodium aluminium chlorohydroxylactate, which is marketed under the name of Chloracel®, and other astringent substances.

Dermatological principles are generally understood to be substances

which have a healing effect or preventive effect on diseases of the skin. Suitable dermatological agents are, for example, local anaesthetics, antibiotics, antiphlogistics, antiallergics, corticosteroids, sebostatic agents and other locally acting pharmaceutical agents.

Vitamins, panthenol, allantoin, plant extracts and proteins with dermatological activity, including for example octoxyglycerol, may also be present as active principles.

Porous powders of spherical polymer particles have long been used in cosmetics as a component of skin-care compositions because they have a favorable effect on the smoothness of the skin and can prevent tackiness (cf. **EP 105 657 A1** and **EP 409 690 B1**). There are also various known processes for producing microspheres such as these from various monomers, for example by special polymerization processes or by dissolving the polymer in a solvent and spraying the solution into a medium in which the solvent is able to evaporate or to diffuse from the particles. One such process is known, for example, from **EP 466 986 B1**. Suitable polymers are, for example, polycarbonates, polyurethanes, polyacrylates, polyolefins, polyesters and polyamides.

The production of porous microspheres by special polymerization processes is described, for example, for polyamides in **DE-A-2 160 125, EP 192 515 B1** and **EP 303 530 B1**. In the processes described in these documents, fillers, for example pigment particles, may also be added to the polymerization mixture so that porous microspheres of polyamides filled with fillers or pigment particles can be produced in this way. A process for producing microspheres from inert particles, for example pigments, coated with polyamide is also described in **EP 196 972 B1**.

Preferred porous powders of spherical polymer particles contain a core of a pigment particle, for example of titanium dioxide. Through polymer powders such as these, a white or colored, optionally pearlescent color effect can be introduced into the clear gel phase, providing the two-phase

stick preparation according to the invention with an attractive appearance.

The porous powders of spherical polymer particles optionally comprising a pigment core preferably have a mean particle size of 0.5 to 50 µm and a specific surface of 1 to 20 m^2/g. Polymer powders such as these are commercially available, for example under the name of Microthene® (U.S.J. Chemicals) in the case of of polyethylene, under the name of Miralite® (Pierce & Stevens Chem. Corp.) in the case of polyvinylidene chloride or under the name of Orgasol® (ATOCHEM SA) in the case of polyamide (Nylon). Other known commercial products are, for example, polyacrylates (Polytrap®, Dow Corning), polymethacrylates (Micropearl®, SEPPIC), polyethylenes and polypropylenes (Accurel®, Akzo).

According to the invention, a particularly preferred two-phase stick preparation contains spherical polymer particles with a core of pigment, preferably titanium dioxide, in a quantity of 30 to 60% by weight, based on particle weight. One such product based on polyamide is obtainable, for example, as Orgasol® 1002 Ex D Wei8 10 Cos from Lehmann & Voss & Co., Hamburg.

The gel phases of the multiphase sticks according to the invention preferably consist of soap gels and contain

20 to 90% by weight of monohydric or polyhydric alcohols containing 2 to 6 carbon atoms,

4 to 14% by weight of fatty acids containing 12 to 22 carbon atoms in the form of their metal or amine soaps,

0.1 to 30% by weight of perfumes or cosmetic or dermatological principles and optionally water and typical galenic auxiliaries.

Typical galenic auxiliaries in the context of the invention are substances which are normally added to stick preparations of the type in question to influence consistency, transparency, abrasion or stability. Corresponding auxiliaries are, above all, surface-active substances, for example emulsifiers, solubilizers and dispersants. In addition, thickeners,

for example water-soluble polymers, layer silicates, pyrogenic silica, electrolyte salts, such as KCl, NaCl, complexing agents, for example EDTA tetrasodium salt, and other auxiliaries are used.

The gel phases of the multiphase stick preparation according to the invention are preferably very similar in composition and, for the most part, differ only in their color, transparency, content of polymer powder and the active principles present therein.

In another preferred embodiment, the porous powder of spherical polymer particles is charged with perfumes or cosmetic or dermatological principles. This is preferably done by incorporating the microspheres in the gel in the form of a dispersion in monohydric or polyhydric alcohols in which the perfumes or active principles are also present.

A delayed release of the perfumes and active principles on the skin and hence a prolonging of the effect on the skin are achieved in this way. In addition, unwanted interaction with other components of the gel phase is prevented in this way.

Totally different or incompatible active principles may also be incorporated in the stick composition in this way providing part of the polymer powder is charged with one active principle and another part of the polymer powder is charged with another active principle and the polymer powders thus differently charged are introduced into the same phase of the stick composition.

In one particularly preferred embodiment, the stick composition is present in the form of two or more concentrically arranged phases of which the inner phase or one of the inner phases contain(s) the dispersed powder of spherical polymer particles. The outer phase is preferably transparent and optionally lightly colored. Aesthetically particularly attractive stick preparations are obtained in this way. Corresponding stick preparations can be produced, for example, by initially forming the core by pouring the gel liquefied by heating into a mold, allowing it to cool and gel, removing it

from the mold, introducing it into a wider mold and then forming the outer phase or jacket by pouring the gel liquefied by heating into the space between the core and the mold wall, allowing it to cool and gel and removing it from the mold.

A similar process comprises initially forming the outer phase/jacket by pouring the liquefied gel into an annular mold with a removable cylindrical core, allowing it to cool and gel and removing the core and then pouring the liquefied gel of the core into the cylindrical space of the jacket thus formed and leaving it to harden.

In principle, the core does not have to be cylindrical in shape and may even assume the form of a cone or frustum or a helix. In order to simplify production, the phases may advantageously be arranged parallel to the longitudinal axis of the stick.

In this case, it is possible in principle to use the continuous processes known from the technology of soap production for producing multicolored soap strands of differently colored soap compositions in order to product a single strand of two or more gels which can be cut into sticks of any length. Corresponding processes for producing strands of concentrically arranged phases are, for example, the coaxial extrusion processes known from **AT-PS 198 501** and **DE-AS 2 526 917**. Other processes for producing multiphase strands of phases arranged parallel to the longitudinal axis (but not concentric phases) are described in **US 3,268,970**.

The multiphase stick preparations produced in this way are preferably introduced into a tube with a bottom piston designed for displacement longitudinally of the tube axis by a pushing, turning or pressure mechanism of the type typically used for deodorant sticks and other cosmetic sticks. In this way, the stick can be conveniently handled without the fingers coming into direct contact with the stick.

The following Examples are intended to illustrate the invention.

Examples

Formulations	K1	K2	K3	K4
Palmitic/stearic acid 12)	6.50	4.80	7.00	7.00
Isostearic acid 1)	-	1.20	-	-
Ethanol (96% by volume) denatured	56.80	-	30.00	45.00
1,2-Propylene glycol	29.17	30.00	26.01	36.40
Butane-1,3-diol	-	-	-	-
Polyethylene glycol 400	-	-	-	5.00
Glycerol, 86%	2.60	46.00	26.40	3.00
Sorbitol, 70%	-	10.00	-	-
Water	2.15	4.10	-	-
Fatty alcohol polyglycol ether 2)	-	-	-	-
Hydrogenated castor oil polyglycol ether 3)	-	-	-	-
Fatty alcohol polyglycol ether 4)	-	-	3.00	-
2-Octyl dodecanol 5)	-	-	-	-
Sodium chloride	-	0.15	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	-	-	0.20	0.20
NaOH (pellets)	0.98	-	-	-
Sodium hydroxide, 45%	-	2.05	2.39	2.40
Triethanolamine	0.20	-	-	-
Phenoxyethanol	-	-	-	0.50
Triclosan	0.10	0.20	-	-
Farnesol	-	-	0.50	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	-	-	-	-
Perfume oil	1.00	1.00	4.00	-
Dye solution	-	-	-	-
Polymer powder 8)	0.50	0.50	0.50	0.50
	100.00	100.00	100.00	100.00

Formulations	K5	K6	K7	K8
Palmitic/stearic acid 12)	7.00	7.00	7.00	7.00
Isostearic acid 1)	-	-	-	-
Ethanol (96% by volume) denatured	45.00	40.00	50.00	40.00
1,2-Propylene glycol	35.40	45.40	25.40	35.40
Butane-1,3-diol	-	-	-	10.00
Polyethylene glycol 400	-	-	-	-
Glycerol, 86%	3.00	3.00	3.00	3.00
Sorbitol, 70%	-	-	-	-
Water	5.00	-	10.00	-
Fatty alcohol polyglycol ether 2)	-	-	-	-
Hydrogenated castor oil polyglycol ether 3)	-	-	-	-
Fatty alcohol polyglycol ether 4)	-	-	-	-
2-Octyl dodecanol 5)	-	-	-	-
Sodium chloride	-	-	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	0.20	0.20	0.20	0.20
NaOH (pellets)	-	-	-	-
Sodium hydroxide, 45%	2.40	2.40	2.40	2.40
Triethanolamine	-	-	-	-
Phenoxyethanol	0.50	0.50	0.50	0.50
Triclosan	-	-	-	-
Farnesol	-	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	-	-	-	-
Perfume oil	1.00	1.00	1.00	1.00
Dye solution	-	-	-	-
Polymer powder 8)	0.50	0.50	0.50	0.50
	100.00	100.00	100.00	100.00

Formulations	K9	K10	K11	K12
Palmitic/stearic acid 12)	4.50	7.00	4.50	4.50
Isostearic acid 1)	-	-	-	-
Ethanol (96% by volume) denatured	22.70	50.00	30.00	50.00
1,2-Propylene glycol	20.91	34.10	37.75	17.95
Butane-1,3-diol	32.00	-	20.00	20.00
Polyethylene glycol 400	-	-	-	-
Glycerol, 86%	-	3.00	3.00	3.00
Sorbitol, 70%	-	-	-	-
Water	9.70	-	-	-
Fatty alcohol polyglycol ether 2)	3.00	-	-	-
Hydrogenated castor oil polyglycol ether 3)	0.05	-	-	-
Fatty alcohol polyglycol ether 4)	-	-	-	-
2-Octyl dodecanol 5)	2.00	-	-	-
Sodium chloride	-	-	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	-	0.20	0.20	-
NaOH (pellets)	-	-	-	-
Sodium hydroxide, 45%	1.54	2.40	1.55	1.55
Triethanolamine	-	-	-	-
Phenoxyethanol	1.00	1.00	0.50	0.50
Triclosan	-	-	-	-
Farnesol	-	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	0.30	-	-	-
Perfume oil	2.00	2.00	1.50	1.50
Dye solution	-	-	-	-
Polymer powder 8)	0.30	0.30	1.00	1.00
	100.00	100.00	100.00	100.00

Formulations	K13	K14	K15	K16
Palmitic/stearic acid 12)	4.50	4.50	4.50	4.50
Isostearic acid 1)	-	-	-	-
Ethanol (96% by volume) denatured	50.00	40.00	40.00	22.70
1,2-Propylene glycol	7.95	26.95	29.95	19.40
Butane-1,3-diol	30.00	20.00	20.00	32.00
Polyethylene glycol 400	-	-	-	-
Glycerol, 86%	3.00	3.00	-	-
Sorbitol, 70%	-	-	-	-
Water	-	-	-	9.70
Fatty alcohol polyglycol ether 2)	-	-	-	5.00
Hydrogenated castor oil polyglycol ether 3)	-	-	-	0.05
Fatty alcohol polyglycol ether 4)	-	1.00	1.00	-
2-Octyl dodecanol 5)	-	-	-	2.00
Sodium chloride	-	-	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	-	-	-	-
NaOH (pellets)	-	-	-	-
Sodium hydroxide, 45%	1.55	1.55	1.55	1.55
Triethanolamine	-	-	-	-
Phenoxyethanol	0.50	0.50	0.50	0.50
Triclosan	-	-	-	-
Farnesol	-	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	-	-	-	0.30
Perfume oil	1.50	1.50	1.50	1.80
Dye solution	-	-	-	-
Polymer powder 8)	1.00	1.00	1.00	0.50
	100.00	100.00	100.00	100.00

Formulations	K17	K18	K19
Palmitic/stearic acid 12)	7.50	4.50	4.60
Isostearic acid 1)	-	-	-
Ethanol (96% by volume) denatured	-	-	9.10
1,2-Propylene glycol	-	-	-
Butane-1,3-diol	3.00	3.00	2.70
Polyethylene glycol 400	42.83	45.65	42.00
Glycerol, 86%	-	-	-
Sorbitol, 70%	-	-	-
Water	38.50	39.80	35.49
Silicone oil copolyol 9)	2.00	2.00	1.80
Fatty alcohol polyglycol ether 10)	0.20	0.20	0.20
Silicone oil 11)	0.05	0.05	0.05
2-Octyl dodecanol 5)	-	-	-
NaOH (pellets)	-	-	-
Sodium hydroxide, 45%	2.32	1.50	1.36
Triethanolamine	-	-	-
Phenoxyethanol	1.00	1.50	0.90
Triclosan	-	-	-
Farnesol	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	0.30	0.30	0.30
Perfume oil	2.00	1.20	1.10
Dye solution	-	-	-
Polymer powder 8)	0.30	0.30	0.40
	100.00	100.00	100.00

The following commercial products were used:

1) Emersol® 875
2) Aethoxal® B
3) Cremophor® RH455
4) Eumulgin® B3
5) Eutanol® G
6) Trilon® B
7) Sensiva® SC 50
8) Orgasol® 1002 EXD weiß 10 COS
9) Abil® B8843
10) Brij® 76
11) Silikonöl 100
12) Cutina® FS 45

Formulations	H1	H2	H3	H4
Palmitic/stearic acid 12)	6.50	4.80	7.00	7.00
Isostearic acid 1)	-	1.20	-	-
Ethanol (96% by volume) denatured	56.90	-	30.00	45.00
1,2-Propylene glycol	29.17	30.00	26.51	36.60
Butane-1,3-diol	-	-	-	-
Polyethylene glycol 400	-	-	-	5.00
Glycerol, 86%	2.60	46.00	26.40	3.00
Sorbitol, 70%	-	10.00	-	-
Water	2.15	4.38	-	-
Fatty alcohol polyglycol ether 2)	-	-	-	-
Hydrogenated castor oil polyglycol ether 3)	-	-	-	-
Fatty alcohol polyglycol ether 4)	-	-	3.00	-
2-Octyl dodecanol 5)	-	-	-	-
Sodium chloride	-	0.15	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	-	-	0.20	0.20
NaOH (pellets)	0.98	-	-	-
Sodium hydroxide, 45%	-	2.05	2.39	2.40
Triethanolamine	0.20	-	-	-
Phenoxyethanol	-	-	-	0.50
Triclosan	0.10	0.20	-	-
Farnesol	-	-	0.50	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	-	-	-	-
Perfume oil	1.00	1.00	4.00	-
Dye solution	0.40	0.22	-	0.30
Polymer powder 8)	-	-	-	-
	100.00	100.00	100.00	100.00

Formulations	H5	H6	H7	H8
Palmitic/stearic acid 12)	4.50	7.00	7.00	7.00
Isostearic acid 1)	-	-	-	-
Ethanol (96% by volume) denatured	22.70	50.00	45.00	40.00
1,2-Propylene glycol	21.71	34.90	36.60	46.60
Butane-1,3-diol	32.00	-	-	-
Polyethylene glycol 400	-	-	-	-
Glycerol, 86%	-	3.00	3.00	3.00
Sorbitol, 70%	-	-	-	-
Water	9.70	-	5.00	-
Fatty alcohol polyglycol ether 2)	3.00	-	-	-
Hydrogenated castor oil polyglycol ether 3)	0.05	-	-	-
Fatty alcohol polyglycol ether 4)	-	-	-	-
2-Octyl dodecanol 5)	2.00	-	-	-
Sodium chloride	-	-	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	-	0.20	0.20	0.20
NaOH (pellets)	-	-	-	-
Sodium hydroxide, 45%	1.54	2.40	2.40	2.40
Triethanolamine	-	-	-	-
Phenoxyethanol	0.50	0.50	0.50	0.50
Triclosan	-	-	-	-
Farnesol	-	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	0.30	-	-	-
Perfume oil	1.50	1.50	-	-
Dye solution	0.50	0.50	0.30	0.30
Polymer powder 8)	-	-	-	-
	100.00	100.00	100.00	100.00

Formulations	H9	H10	H11	H12
Palmitic/stearic acid 12)	7.00	7.00	4.50	4.50
Isostearic acid 1)	-	-	-	-
Ethanol (96% by volume) denatured	50.00	40.00	30.00	50.00
1,2-Propylene glycol	26.60	36.60	40.25	20.45
Butane-1,3-diol	-	10.00	20.00	20.00
Polyethylene glycol 400	-	-	-	-
Glycerol 86%	3.00	3.00	3.00	3.00
Sorbitol, 70%	-	-	-	-
Water	10.00	-	-	-
Fatty alcohol polyglycol ether 2)	-	-	-	-
Hydrogenated castor oil polyglycol ether 3)	-	-	-	-
Fatty alcohol polyglycol ether 4)	-	-	-	-
2-Octyl dodecanol 5)	-	-	-	-
Sodium chloride	-	-	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	0.20	0.20	0.20	-
NaOH (pellets)	-	-	-	-
Sodium hydroxide, 45%	2.40	2.40	1.55	1.55
Triethanolamine	-	-	-	-
Phenoxyethanol	0.50	0.50	0.50	0.50
Triclosan	-	-	-	-
Farnesol	-	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	-	-	-	-
Perfume oil	-	-	-	-
Dye solution	0.30	0.30	-	-
Polymer powder 8)	-	-	-	-
	100.00	100.00	100.00	100.00

Formulations	H13	H14	H15
Palmitic/stearic acid 12)	4.50	4.50	4.50
Isostearic acid 1)	-	-	-
Ethanol (96% by volume) denatured	50.00	40.00	40.00
1,2-Propylene glycol	10.45	29.45	32.45
Butane-1,3-diol	30.00	20.0	20.00
Polyethylene glycol 400	-	-	-
Glycerol 86%	3.00	3.00	-
Sorbitol, 70%	-	-	-
Water	-	-	-
Fatty alcohol polyglycol ether 2)	-	-	-
Hydrogenated castor oil polyglycol ether 3)	-	-	-
Fatty alcohol polyglycol ether 4)	-	1.00	1.00
2-Octyl dodecanol 5)	-	-	-
Sodium chloride	-	-	-
Ethylenediamine tetraacetic acid tetrasodium salt solution 6)	-	-	-
NaOH (pellets)	-	-	-
Sodium hydroxide, 45%	1.55	1.55	1.55
Triethanolamine	-	-	-
Phenoxyethanol	0.50	0.50	0.50
Triclosan	-	-	-
Farnesol	-	-	-
3-(2-ethylhexyloxy)-propane-1,2-diol 7)	-	-	-
Perfume oil	-	-	-
Dye solution	-	-	-
Polymer powder 8)	-	-	-
	100.00	100.00	100.00

1. Production of the stick compositions containing polymer powders K1 to K19

First a premix was prepared from

0.3 part by weight Orgasol® 1002 EXD weiß 10 COS
0.7 part by weight 1,2-propylene glycol
1.0 part by weight phenoxyethanol
0.3 part by weight 3-(2-ethylhexyloxy)-propane-1,2-diol and
1.0 part by weight perfume oil.

The premix was obtained in the form of a white flowable paste.

Fatty acid, ethanol and the remaining polyols and oil components were mixed and heated to 65°C, after which the 45% aqueous sodium hydroxide also heated to 65°C was added. Saponification was carried out with stirring at 65°C. After complete saponification of the fatty acid, the premix, the remaining perfume oil and the other components were stirred in. The mixture was then introduced into prepared cylindrical molds of which the diameter was ca. 60% of the diameter of a commercially available cosmetic stick.

The stick was demolded after cooling to 15°C.

2. Production of stick compositions H1 to H15

These stick compositions were produced in the same way as normal soap gel sticks.

3. Production of a two-phase deodorant stick

A demolded stick composition based on formulation K4 was centrally introduced as core into a standard stick tube. Stick composition H4 was then prepared and poured at 65°C into the space between the core and the tube wall.

After the closure caps had been screwed on, the stick tubes were inverted, i.e. turned upside-down, so that the stick composition which had not yet solidified formed a smooth surface in the closure cap.

After cooling, an attractive-looking two-phase stick with a transparent lightly colored outer phase and a white core was obtained.

Two-phase sticks were produced in the same way from the following stick compositions:

K6 (core) + H4 (jacket)	K8 (core) + H10 (jacket)
K8 (core) + H4 (jacket)	K5 (core) + H4 (jacket)
K10 (core) + H4 (jacket)	K7 (core) + H15 (jacket)
K15 (core) + H5 (jacket)	K9 (core) + H5 (jacket)
K4 (core) + H6 (jacket)	K11 (core) + H5 (jacket)
K6 (core) + H6 (jacket)	K18 (core) + H5 (jacket)
K9 (core) + H6 (jacket)	K5 (core) + H6 (jacket)
K6 (core) + H8 (jacket)	K8 (core) + H6 (jacket)
K4 (core) + H10 (jacket)	K10 (core) + H6 (jacket)
K8 (core) + H8 (jacket)	K8 (core) + H8 (jacket)
K5 (core) + H10 (jacket)	K10 (core) + H10 (jacket)

Two-phase sticks with a clearly discernible core in a transparent jacket were obtained in every case and had not changed in any way after several weeks at 25°C.

CLAIMS

1. A stick preparation of a composition which is dimensionally stable up to 40°C, can be spread onto the skin and melts at temperatures above 40°C and which consists of two or more separate gel phases of different composition which contain monohydric or polyhydric alcohols, gelling agents, perfumes, cosmetic or dermatological principles and optionally water and galenic auxiliaries, characterized in that a porous powder of spherical polymer particles is dispersed in one of the gel phases in a quantity of 0.1 to 10% by weight, based on that phase.

2. A stick preparation as claimed in claim 1, characterized in that it is present in the form of two or more concentric phases of which the inner phase or one of the inner phases contain(s) the dispersed powder of spherical polymer particles.

3. A stick preparation as claimed in claim 1 or 2, characterized in that the phases contain

20 to 90% by weight of monohydric or polyhydric alcohols containing 2 to 6 carbon atoms,

4 to 14% by weight of fatty acids containing 12 to 22 carbon atoms in the form of their metal or amine soaps,

0.1 to 30% by weight of perfumes or cosmetic or dermatological principles and optionally water and typical galenic auxiliaries.

4. A stick preparation as claimed in any of claims 1 to 3, characterized in that the spherical polymer particles comprise a core of a pigment, preferably titanium dioxide, in a quantity of 30 to 60% by weight, based on the particle weight.

5. A stick preparation as claimed in any of claims 1 to 4, characterized in that deodorizing or perspiration-inhibiting agents are present as the cosmetic principles.

6. A process for producing the stick preparation claimed in any of claims 1 to 5, characterized in that the porous powder of spherical polymer

particles is charged with the perfumes or active principles by incorporation in the gel phase in the form of a dispersion in the monohydric or polyhydric alcohol in which the perfumes or active principles are also present.